

FRONIUS SYMO

/ Maximum flexibility for the applications of tomorrow.



/ SnapInverter technology



/ Integrated data communication



/ SuperFlex Design



/ Dynamic Peak Manager



/ Smart Grid Ready



/ Boasting power categories ranging from 3.0 to 20.0 kW, the transformerless Fronius Symo is the three-phase inverter for systems of every size. Owing to the SuperFlex Design, the Fronius Symo is the perfect answer to irregularly shaped or multi-oriented roofs. The standard interface to the internet via WLAN or Ethernet and the ease of integration of third-party components make the Fronius Symo one of the most communicative inverters on the market. Furthermore, the meter interface permits dynamic feed-in management and a clear visualisation of the consumption overview.

TECHNICAL DATA FRONIUS SYMO (3.0-3-S, 3.7-3-S, 4.5-3-S, 3.0-3-M, 3.7-3-M, 4.5-3-M)

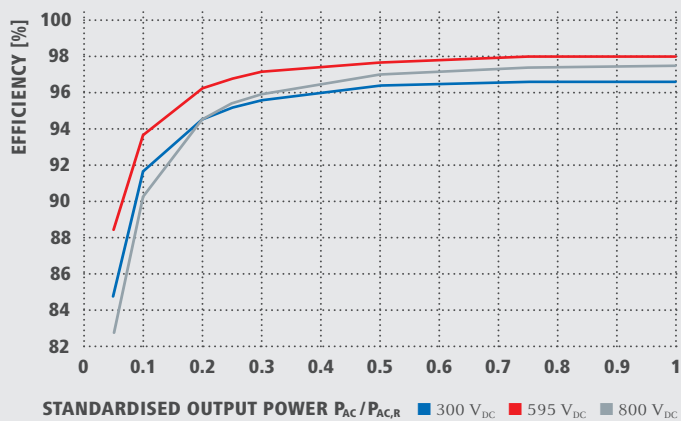
| INPUT DATA | SYMO 3.0-3-S | SYMO 3.7-3-S | SYMO 4.5-3-S | SYMO 3.0-3-M | SYMO 3.7-3-M | SYMO 4.5-3-M |
|--|--|--------------|--------------|---|--------------|--------------|
| Max. input current ($I_{dc \max 1} / I_{dc \max 2}^{1)}$) | | | | 16.0 A / 16.0 A | | |
| Max. array short circuit current (MPP ₁ /MPP ₂ ¹⁾) | | | | 24.0 A / 24.0 A | | |
| Min. input voltage ($U_{dc \min}$) | | | | 150 V | | |
| Feed-in start voltage ($U_{dc \text{ start}}$) | | | | 200 V | | |
| Nominal input voltage ($U_{dc \text{ r}}$) | | | | 595 V | | |
| Max. input voltage ($U_{dc \max}$) | | | | 1,000 V | | |
| MPP voltage range ($U_{mpp \min} - U_{mpp \max}$) | 200 - 800 V | 250 - 800 V | 300 - 800 V | | 150 - 800 V | |
| Number MPP trackers | | 1 | | | 2 | |
| Number of DC connections | | 3 | | | 2+2 | |
| OUTPUT DATA | SYMO 3.0-3-S | SYMO 3.7-3-S | SYMO 4.5-3-S | SYMO 3.0-3-M | SYMO 3.7-3-M | SYMO 4.5-3-M |
| AC nominal output ($P_{ac \text{ r}}$) | 3,000 W | 3,700 W | 4,500 W | 3,000 W | 3,700 W | 4,500 W |
| Max. output power | 3,000 VA | 3,700 VA | 4,500 VA | 3,000 VA | 3,700 VA | 4,500 VA |
| AC output current ($I_{ac \text{ nom}}$) | 4.3 A | 5.3 A | 6.5 A | 4.3 A | 5.3 A | 6.5 A |
| Grid connection (voltage range) | 3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20 % / -30 %) | | | | | |
| Frequency (Frequency range) | 50 Hz / 60 Hz (45 - 65 Hz) | | | | | |
| Total harmonic distortion | < 3 % | | | | | |
| Power factor ($\cos \varphi_{ac \text{ r}}$) | 0.70 - 1 ind. / cap. | | | 0.85 - 1 ind. / cap. | | |
| GENERAL DATA | SYMO 3.0-3-S | SYMO 3.7-3-S | SYMO 4.5-3-S | SYMO 3.0-3-M | SYMO 3.7-3-M | SYMO 4.5-3-M |
| Dimensions (height x width x depth) | 645 x 431 x 204 mm | | | | | |
| Weight | 16.0 kg | | | 19.9 kg | | |
| Degree of protection | IP 65 | | | | | |
| Protection class | 1 | | | | | |
| Overvoltage category (DC / AC) ²⁾ | 2 / 3 | | | | | |
| Night time consumption | < 1 W | | | | | |
| Inverter design | Transformerless | | | | | |
| Cooling | Regulated air cooling | | | | | |
| Installation | Indoor and outdoor installation | | | | | |
| Ambient temperature range | -25 - +60 °C | | | | | |
| Permitted humidity | 0 - 100 % | | | | | |
| Max. altitude | 2,000 m / 3,400 m (unrestricted / restricted voltage range) | | | | | |
| DC connection technology | 3x DC+ and 3x DC- screw terminals 2.5 - 16 mm ² | | | 4x DC+ and 4x DC- screw terminals 2.5 - 16mm ² ³⁾ | | |
| AC connection technology | 5-pole AC screw terminals 2.5 - 16 mm ² | | | 5-pole AC screw terminals 2.5 - 16mm ² ³⁾ | | |
| Certificates and compliance with standards | ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1/A1, VDE AR N 4105, IEC 62109-1/-2, IEC 62116, IEC 61727, AS 3100, AS 4777-2, AS 4777-3, CER 06-190, G83/2, UNE 206007-1, SI 4777 ¹⁾ , CEI 0-21 ¹⁾ , NRS 097 | | | | | |

¹⁾ This applies to Fronius Symo 3.0-3-M, 3.7-3-M and 4.5-3-M.

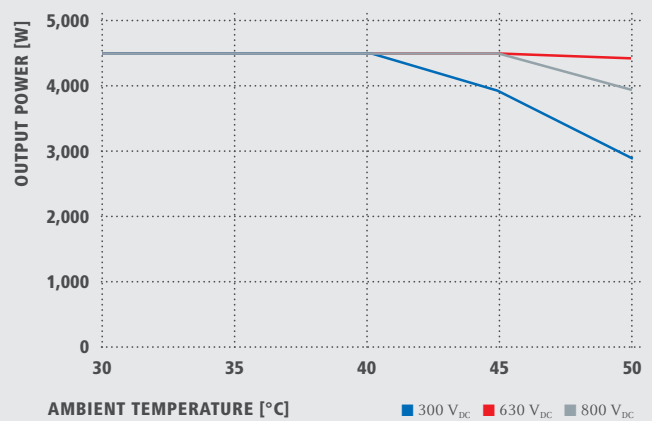
²⁾ According to IEC 62109-1.

³⁾ 16 mm² without wire end ferrules. Further information regarding the availability of the inverters in your country can be found at www.fronius.com.

FRONIUS SYMO 4.5-3-S EFFICIENCY CURVE



FRONIUS SYMO 4.5-3-S TEMPERATURE DERATING



TECHNICAL DATA FRONIUS SYMO (3.0-3-S, 3.7-3-S, 4.5-3-S, 3.0-3-M, 3.7-3-M, 4.5-3-M)

| EFFICIENCY | SYMO 3.0-3-S | SYMO 3.7-3-S | SYMO 4.5-3-S | SYMO 3.0-3-M | SYMO 3.7-3-M | SYMO 4.5-3-M |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Max. efficiency | 98.0 % | | | | | |
| European efficiency (η_{EU}) | 96.2 % | 96.7 % | 97.0 % | 96.5 % | 96.9 % | 97.2 % |
| η at 5 % $P_{Ac,r}$ ¹⁾ | 80.3 / 83.6 / 79.1 % | 83.4 / 86.4 / 80.6 % | 84.8 / 88.5 / 82.8 % | 79.8 / 85.1 / 80.8 % | 81.6 / 87.8 / 82.8 % | 83.4 / 90.3 / 85.0 % |
| η at 10 % $P_{Ac,r}$ ¹⁾ | 87.8 / 91.0 / 86.2 % | 90.1 / 92.5 / 88.7 % | 91.7 / 93.7 / 90.3 % | 86.5 / 91.6 / 87.7 % | 87.9 / 93.6 / 90.5 % | 89.2 / 94.1 / 91.2 % |
| η at 20 % $P_{Ac,r}$ ¹⁾ | 92.6 / 95.0 / 92.6 % | 93.7 / 95.7 / 93.6 % | 94.6 / 96.3 / 94.5 % | 90.8 / 95.3 / 93.0 % | 91.9 / 96.0 / 94.1 % | 92.8 / 96.5 / 95.1 % |
| η at 25 % $P_{Ac,r}$ ¹⁾ | 93.4 / 95.6 / 93.8 % | 94.5 / 96.4 / 94.7 % | 95.2 / 96.8 / 95.4 % | 91.9 / 96.0 / 94.2 % | 92.9 / 96.6 / 95.2 % | 93.5 / 97.0 / 95.8 % |
| η at 30 % $P_{Ac,r}$ ¹⁾ | 94.0 / 96.3 / 94.5 % | 95.0 / 96.7 / 95.4 % | 95.6 / 97.2 / 95.9 % | 92.8 / 96.5 / 95.1 % | 93.5 / 97.0 / 95.8 % | 94.2 / 97.3 / 96.3 % |
| η at 50 % $P_{Ac,r}$ ¹⁾ | 95.2 / 97.3 / 96.3 % | 96.9 / 97.6 / 96.7 % | 96.4 / 97.7 / 97.0 % | 94.3 / 97.5 / 96.5 % | 94.6 / 97.7 / 96.8 % | 94.9 / 97.8 / 97.2 % |
| η at 75 % $P_{Ac,r}$ ¹⁾ | 95.6 / 97.7 / 97.0 % | 96.2 / 97.8 / 97.3 % | 96.6 / 98.0 / 97.4 % | 94.9 / 97.8 / 97.2 % | 95.0 / 97.9 / 97.4 % | 95.1 / 98.0 / 97.5 % |
| η at 100 % $P_{Ac,r}$ ¹⁾ | 95.6 / 97.9 / 97.3 % | 96.2 / 98.0 / 97.5 % | 96.6 / 98.0 / 97.5 % | 95.0 / 98.0 / 97.4 % | 95.1 / 98.0 / 97.5 % | 95.0 / 98.0 / 97.6 % |
| MPP adaptation efficiency | > 99.9 % | | | | | |

¹⁾ And at $U_{mpp\ min} / U_{dc,r} / U_{mpp\ max}$

| PROTECTIVE DEVICES | SYMO 3.0-3-S | SYMO 3.7-3-S | SYMO 4.5-3-S | SYMO 3.0-3-M | SYMO 3.7-3-M | SYMO 4.5-3-M |
|-----------------------------|---|--------------|--------------|--------------|--------------|--------------|
| DC insulation measurement | Yes | | | | | |
| Overload behaviour | Operating point shift, power limitation | | | | | |
| DC disconnecter | Yes | | | | | |
| Reverse polarity protection | Yes | | | | | |

| INTERFACES | SYMO 3.0-3-S | SYMO 3.7-3-S | SYMO 4.5-3-S | SYMO 3.0-3-M | SYMO 3.7-3-M | SYMO 4.5-3-M |
|--------------------------------------|---|--------------|--------------|--------------|--------------|--------------|
| WLAN / Ethernet LAN | Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON) | | | | | |
| 6 inputs and 4 digital in/out | Interface to ripple control receiver | | | | | |
| USB (A socket) ²⁾ | Datalogging, inverter update via USB flash drive | | | | | |
| 2x RS422 (RJ45 socket) ²⁾ | Fronius Solar Net | | | | | |
| Signalling output ²⁾ | Energy management (potential-free relay output) | | | | | |
| Datalogger and Webserver | Included | | | | | |
| External input ²⁾ | S0-Meter Interface / Input for overvoltage protection | | | | | |
| RS485 | Modbus RTU SunSpec or meter connection | | | | | |

²⁾ Also available in the light version.

TECHNICAL DATA FRONIUS SYMO (5.0-3-M, 6.0-3-M, 7.0-3-M, 8.2-3-M)

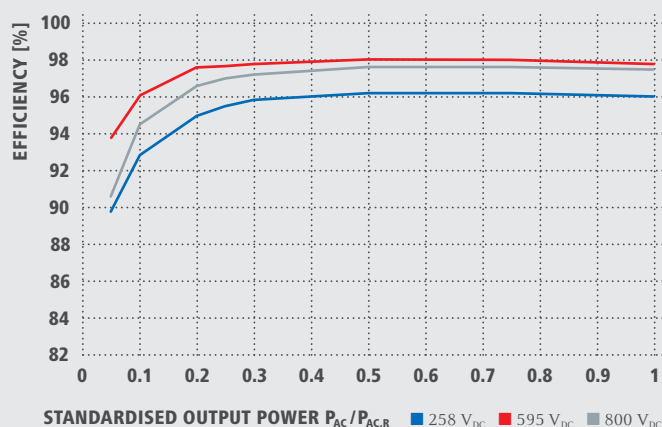
| INPUT DATA | SYMO 5.0-3-M | SYMO 6.0-3-M | SYMO 7.0-3-M | SYMO 8.2-3-M |
|--|--|-----------------|--------------|--------------|
| Max. input current ($I_{dc \max 1} / I_{dc \max 2}$) | | 16.0 A / 16.0 A | | |
| Max. array short circuit current (MPP ₁ /MPP ₂) | | 24.0 A / 24.0 A | | |
| Min. input voltage ($U_{dc \min}$) | | 150 V | | |
| Feed-in start voltage ($U_{dc \text{ start}}$) | | 200 V | | |
| Nominal input voltage ($U_{dc \text{ r}}$) | | 595 V | | |
| Max. input voltage ($U_{dc \max}$) | | 1,000 V | | |
| MPP voltage range ($U_{mpp \min} - U_{mpp \max}$) | 163 - 800 V | 195 - 800 V | 228 - 800 V | 267 - 800 V |
| Number MPP trackers | | 2 | | |
| Number of DC connections | | 2 + 2 | | |
| OUTPUT DATA | SYMO 5.0-3-M | SYMO 6.0-3-M | SYMO 7.0-3-M | SYMO 8.2-3-M |
| AC nominal output ($P_{ac,r}$) | 5,000 W | 6,000 W | 7,000 W | 8,200 W |
| Max. output power | 5,000 VA | 6,000 VA | 7,000 VA | 8,200 VA |
| AC output current ($I_{ac \text{ nom}}$) | 7.2 A | 8.7 A | 10.1 A | 11.8 A |
| Grid connection (voltage range) | 3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20 % / -30 %) | | | |
| Frequency (Frequency range) | 50 Hz / 60 Hz (45 - 65 Hz) | | | |
| Total harmonic distortion | < 3 % | | | |
| Power factor ($\cos \varphi_{ac,r}$) | 0.85 - 1 ind. / cap. | | | |
| GENERAL DATA | SYMO 5.0-3-M | SYMO 6.0-3-M | SYMO 7.0-3-M | SYMO 8.2-3-M |
| Dimensions (height x width x depth) | 645 x 431 x 204 mm | | | |
| Weight | 19.9 kg | | | 21.9 kg |
| Degree of protection | IP 65 | | | |
| Protection class | 1 | | | |
| Overvoltage category (DC / AC) ¹⁾ | 2 / 3 | | | |
| Night time consumption | < 1 W | | | |
| Inverter design | Transformerless | | | |
| Cooling | Regulated air cooling | | | |
| Installation | Indoor and outdoor installation | | | |
| Ambient temperature range | -25 - +60 °C | | | |
| Permitted humidity | 0 - 100 % | | | |
| Max. altitude | 2,000 m / 3,400 m (unrestricted / restricted voltage range) | | | |
| DC connection technology | 4x DC+ and 4x DC- Screw terminals 2.5 - 16mm ^{2,2)} | | | |
| AC connection technology | 5-pole AC Screw terminals 2.5 - 16mm ^{2,2)} | | | |
| Certificates and compliance with standards | ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1/A1, VDE AR N 4105, IEC 62109-1/-2, IEC 62116, IEC 61727, AS 3100, AS 4777-2, AS 4777-3, CER 06-190, G83/2, UNE 206007-1, SI 4777, CEI 0-21, NRS 097 | | | |

¹⁾ According to IEC 62109-1.

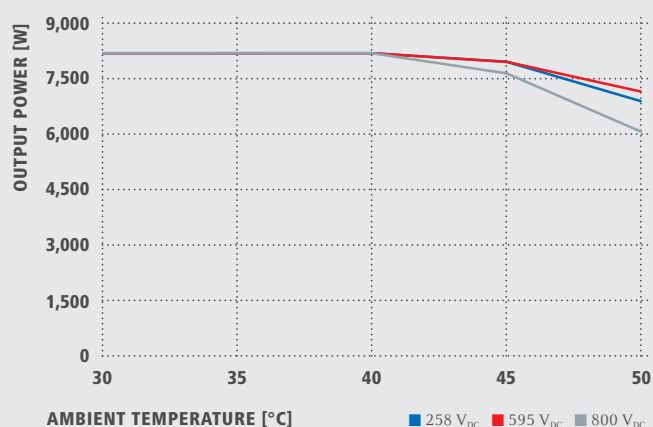
²⁾ 16 mm² without wire end ferrules.

Further information regarding the availability of the inverters in your country can be found at www.fronius.com.

FRONIUS SYMO 8.2-3-M EFFICIENCY CURVE



FRONIUS SYMO 8.2-3-M TEMPERATURE DERATING



TECHNICAL DATA FRONIUS SYMO (5.0-3-M, 6.0-3-M, 7.0-3-M, 8.2-3-M)

| EFFICIENCY | SYMO 5.0-3-M | SYMO 6.0-3-M | SYMO 7.0-3-M | SYMO 8.2-3-M |
|--|----------------------|----------------------|----------------------|----------------------|
| Max. efficiency | 98.0 % | | | |
| European efficiency (η_{EU}) | 97.3 % | 97.5 % | 97.6 % | 97.7 % |
| η at 5 % $P_{AC,r}$ ¹⁾ | 84.9 / 91.2 / 85.9 % | 87.8 / 92.6 / 87.8 % | 88.7 / 93.1 / 89.0 % | 89.8 / 93.8 / 90.6 % |
| η at 10 % $P_{AC,r}$ ¹⁾ | 89.9 / 94.6 / 91.7 % | 91.3 / 95.6 / 93.0 % | 92.0 / 95.9 / 94.7 % | 92.8 / 96.1 / 94.5 % |
| η at 20 % $P_{AC,r}$ ¹⁾ | 93.2 / 96.7 / 95.4 % | 94.1 / 97.1 / 95.9 % | 94.5 / 97.3 / 96.3 % | 95.0 / 97.6 / 96.6 % |
| η at 25 % $P_{AC,r}$ ¹⁾ | 93.9 / 97.2 / 96.0 % | 94.7 / 97.5 / 96.5 % | 95.1 / 97.6 / 96.7 % | 95.5 / 97.7 / 97.0 % |
| η at 30 % $P_{AC,r}$ ¹⁾ | 94.5 / 97.4 / 96.5 % | 95.1 / 97.7 / 96.8 % | 95.4 / 97.7 / 97.0 % | 95.8 / 97.8 / 97.2 % |
| η at 50 % $P_{AC,r}$ ¹⁾ | 95.2 / 97.9 / 97.3 % | 95.7 / 98.0 / 97.5 % | 95.9 / 98.0 / 97.5 % | 96.2 / 98.0 / 97.6 % |
| η at 75 % $P_{AC,r}$ ¹⁾ | 95.3 / 98.0 / 97.5 % | 95.7 / 98.0 / 97.6 % | 95.9 / 98.0 / 97.6 % | 96.2 / 98.0 / 97.6 % |
| η at 100 % $P_{AC,r}$ ¹⁾ | 95.2 / 98.0 / 97.6 % | 95.7 / 97.9 / 97.6 % | 95.8 / 97.9 / 97.5 % | 96.0 / 97.8 / 97.5 % |
| MPP adaptation efficiency | > 99.9 % | | | |

¹⁾ And at $U_{mpp\ min} / U_{dc,r} / U_{mpp\ max}$

| PROTECTIVE DEVICES | SYMO 5.0-3-M | SYMO 6.0-3-M | SYMO 7.0-3-M | SYMO 8.2-3-M |
|-----------------------------|---|--------------|--------------|--------------|
| DC insulation measurement | Yes | | | |
| Overload behaviour | Operating point shift, power limitation | | | |
| DC disconnecter | Yes | | | |
| Reverse polarity protection | Yes | | | |

| INTERFACES | SYMO 5.0-3-M | SYMO 6.0-3-M | SYMO 7.0-3-M | SYMO 8.2-3-M |
|--------------------------------------|---|--------------|--------------|--------------|
| WLAN / Ethernet LAN | Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON) | | | |
| 6 inputs and 4 digital in/out | Interface to ripple control receiver | | | |
| USB (A socket) ²⁾ | Datalogging, inverter update via USB flash drive | | | |
| 2x RS422 (RJ45 socket) ²⁾ | Fronius Solar Net | | | |
| Signalling output ²⁾ | Energy management (potential-free relay output) | | | |
| Datalogger and Webserver | Included | | | |
| External input ²⁾ | S0-Meter Interface / Input for overvoltage protection | | | |
| RS485 | Modbus RTU SunSpec or meter connection | | | |

²⁾ Also available in the light version.

TECHNICAL DATA FRONIUS SYMO (10.0-3-M, 12.5-3-M, 15.0-3-M, 17.5-3-M, 20.0-3-M)

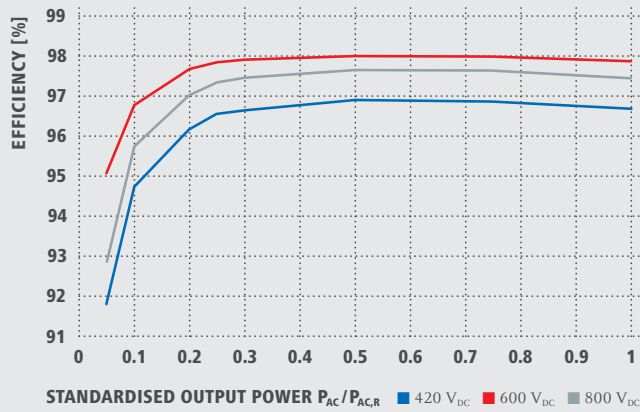
| INPUT DATA | SYMO 10.0-3-M | SYMO 12.5-3-M | SYMO 15.0-3-M | SYMO 17.5-3-M | SYMO 20.0-3-M |
|--|--|------------------------|-------------------------|-------------------------|-------------------------|
| Max. input current ($I_{dc\ max\ 1} / I_{dc\ max\ 2}$) | 27.0 A / 16.5 A ¹⁾ | | 33.0 A / 27.0 A | | |
| Max. usable input current total ($I_{dc\ max\ 1} + I_{dc\ max\ 2}$) | 43.5 A | | 51.0 A | | |
| Max. array short circuit current (MPP ₁ /MPP ₂) | 40.5 A / 24.8 A | | 49.5 A / 40.5 A | | |
| Min. input voltage ($U_{dc\ min}$) | | | 200 V | | |
| Feed-in start voltage ($U_{dc\ start}$) | | | 200 V | | |
| Nominal input voltage ($U_{dc,r}$) | | | 600 V | | |
| Max. input voltage ($U_{dc\ max}$) | | | 1,000 V | | |
| MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$) | 270 - 800 V | 320 - 800 V | | 370 - 800 V | 420 - 800 V |
| Number MPP trackers | | | 2 | | |
| Number of DC connections | | | 3+3 | | |
| Max. PV generator output ($P_{dc\ max}$) | 15.0 kW _{peak} | 18.8kW _{peak} | 22.5 kW _{peak} | 26.3 kW _{peak} | 30.0 kW _{peak} |
| OUTPUT DATA | SYMO 10.0-3-M | SYMO 12.5-3-M | SYMO 15.0-3-M | SYMO 17.5-3-M | SYMO 20.0-3-M |
| AC nominal output ($P_{ac,r}$) | 10,000 W | 12,500 W | 15,000 W | 17,500 W | 20,000 W |
| Max. output power | 10,000 VA | 12,500 VA | 15,000 VA | 17,500 VA | 20,000 VA |
| AC output current ($I_{ac\ nom}$) | 14.4 A | 18.0 A | 21.7 A | 25.3 A | 28.9 A |
| Grid connection (voltage range) | 3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20 % / -30 %) | | | | |
| Frequency (Frequency range) | 50 Hz / 60 Hz (45 - 65 Hz) | | | | |
| Total harmonic distortion | 1.8 % | 2.0 % | 1.5 % | 1.5 % | 1.3 % |
| Power factor ($\cos\ \varphi_{ac,r}$) | 0 - 1 ind. / cap. | | | | |
| GENERAL DATA | SYMO 10.0-3-M | SYMO 12.5-3-M | SYMO 15.0-3-M | SYMO 17.5-3-M | SYMO 20.0-3-M |
| Dimensions (height x width x depth) | 725 x 510 x 225 mm | | | | |
| Weight | 34.8 kg | | 43.4 kg | | |
| Degree of protection | IP 66 | | | | |
| Protection class | 1 | | | | |
| Overvoltage category (DC / AC) ²⁾ | 2 / 3 | | | | |
| Night time consumption | < 1 W | | | | |
| Inverter design | Transformerless | | | | |
| Cooling | Regulated air cooling | | | | |
| Installation | Indoor and outdoor installation | | | | |
| Ambient temperature range | -40 - +60 °C | | | | |
| Permitted humidity | 0 - 100 % | | | | |
| Max. altitude | 2,000 m / 3,400 m (unrestricted / restricted voltage range) | | | | |
| DC connection technology | 6x DC+ and 6x DC- screw terminals 2.5 - 16 mm ² | | | | |
| AC connection technology | 5-pole AC screw terminals 2.5 - 16 mm ² | | | | |
| Certificates and compliance with standards | ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1/A1, VDE AR N 4105, IEC 62109-1/-2, IEC 62116, IEC 61727, AS 3100, AS 4777-2, AS 4777-3, CER 06-190, G83/2, UNE 206007-1, SI 4777, CEI 0-16, CEI 0-21, NRS 097 | | | | |

¹⁾ 14.0 A for voltages < 420 V

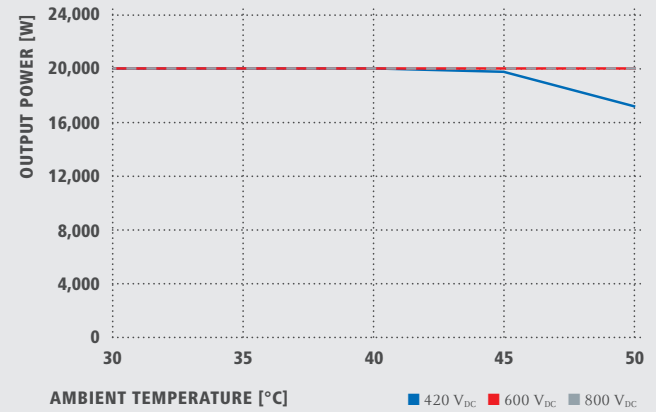
²⁾ According to IEC 62109-1. DIN rail for optional overvoltage protection (type 2) is included.

Further information regarding the availability of the inverters in your country can be found at www.fronius.com.

FRONIUS SYMO 20.0-3-M EFFICIENCY CURVE



FRONIUS SYMO 20.0-3-M TEMPERATURE DERATING



TECHNICAL DATA FRONIUS SYMO (10.0-3-M, 12.5-3-M, 15.0-3-M, 17.5-3-M, 20.0-3-M)

| EFFICIENCY | SYMO 10.0-3-M | SYMO 12.5-3-M | SYMO 15.0-3-M | SYMO 17.5-3-M | SYMO 20.0-3-M |
|--|---|----------------------|----------------------|----------------------|----------------------|
| Max. efficiency | 98.0 % | | | | |
| European efficiency (η _{EU}) | 97.4% | 97.6 % | 97.8 % | 97.8 % | 97.9 % |
| η at 5 % P _{ac,r} ¹⁾ | 87.9 / 92.5 / 89.2 % | 88.7 / 93.1 / 90.1 % | 91.2 / 94.8 / 92.3 % | 91.6 / 95.0 / 92.7 % | 91.9 / 95.2 / 93.0 % |
| η at 10 % P _{ac,r} ¹⁾ | 91.2 / 94.9 / 92.8 % | 92.9 / 96.1 / 94.6 % | 93.4 / 96.0 / 94.4 % | 94.0 / 96.4 / 95.0 % | 94.8 / 96.9 / 95.8 % |
| η at 20 % P _{ac,r} ¹⁾ | 94.6 / 97.1 / 96.1 % | 95.4 / 97.3 / 96.6 % | 95.9 / 97.4 / 96.7 % | 96.1 / 97.6 / 96.9 % | 96.3 / 97.8 / 97.1 % |
| η at 25 % P _{ac,r} ¹⁾ | 95.4 / 97.3 / 96.6 % | 95.6 / 97.6 / 97.0 % | 96.2 / 97.6 / 97.0 % | 96.4 / 97.8 / 97.2 % | 96.7 / 97.9 / 97.4 % |
| η at 30 % P _{ac,r} ¹⁾ | 95.6 / 97.5 / 96.9 % | 95.9 / 97.7 / 97.2 % | 96.5 / 97.8 / 97.3 % | 96.6 / 97.9 / 97.4 % | 96.8 / 98.0 / 97.6 % |
| η at 50 % P _{ac,r} ¹⁾ | 96.3 / 97.9 / 97.4 % | 96.4 / 98.0 / 97.5 % | 96.9 / 98.1 / 97.7 % | 97.0 / 98.1 / 97.7 % | 97.0 / 98.1 / 97.8 % |
| η at 75 % P _{ac,r} ¹⁾ | 96.5 / 98.0 / 97.6 % | 96.5 / 98.0 / 97.6 % | 97.0 / 98.1 / 97.8 % | 97.0 / 98.1 / 97.8 % | 97.0 / 98.1 / 97.7 % |
| η at 100 % P _{ac,r} ¹⁾ | 96.5 / 98.0 / 97.6 % | 96.5 / 97.8 / 97.6 % | 97.0 / 98.1 / 97.7 % | 96.9 / 98.1 / 97.6 % | 96.8 / 98.0 / 97.6 % |
| MPP adaptation efficiency | > 99.9 % | | | | |
| PROTECTIVE DEVICES | SYMO 10.0-3-M | SYMO 12.5-3-M | SYMO 15.0-3-M | SYMO 17.5-3-M | SYMO 20.0-3-M |
| DC insulation measurement | Yes | | | | |
| Overload behaviour | Operating point shift, power limitation | | | | |
| DC disconnecter | Yes | | | | |
| Reverse polarity protection | Yes | | | | |
| INTERFACES | SYMO 10.0-3-M | SYMO 12.5-3-M | SYMO 15.0-3-M | SYMO 17.5-3-M | SYMO 20.0-3-M |
| WLAN / Ethernet LAN | Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON) | | | | |
| 6 inputs and 4 digital inputs/outputs | Interface to ripple control receiver | | | | |
| USB (A socket) ²⁾ | Datalogging, inverter update via USB flash drive | | | | |
| 2x RS422 (RJ45-socket) ²⁾ | Fronius Solar Net | | | | |
| Signalling output ²⁾ | Energy management (potential-free relay output) | | | | |
| Datalogger und Webserver | Included | | | | |
| External input ²⁾ | S0-Meter Interface / Input for overvoltage protection | | | | |
| RS485 | Modbus RTU SunSpec or meter connection | | | | |

¹⁾ And at $U_{mpp\ min} / U_{dcr} / U_{mpp\ max}$ ²⁾ Also available in the light version.

/ Perfect Welding / Solar Energy / Perfect Charging

WE HAVE THREE DIVISIONS AND ONE PASSION: SHIFTING THE LIMITS OF POSSIBILITY.

/ Whether welding technology, photovoltaics or battery charging technology – our goal is clearly defined: to be the innovation leader. With around 3,300 employees worldwide, we shift the limits of what's possible - our record of over 900 granted patents is testimony to this. While others progress step by step, we innovate in leaps and bounds. Just as we've always done. The responsible use of our resources forms the basis of our corporate policy.

Further information about all Fronius products and our global sales partners and representatives can be found at www.fronius.com

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